Amendments to the Specification

[0046] Simultaneous control of droplet size and generation rate may be achieved using the devices and methods of the present invention. Normally, the larger the droplet the slower the generation rate which may be a limitation to the throughput of the device. However, since droplet size is controlled by the flow rates of the outer inlet channels to generate shear forces and the central inlet channel can control the filling up of the droplets (or generation rate), by increasing the flow rate of all the channels, or additionally, by increasing the channel size, the generation rate for larger droplets can be optimized. It is possible to map out the droplet size versus generation rate plot to identify the space to control both simultaneously. Figure 8 is such a plot for one particular device that can be used to determine the droplet generation rate for a ~~give~~ given droplet size. D/Di is the ratio of the diameter of the droplet over the width of the channel (40 μm) and time is defined per droplet.

[0055] The flow rate for the oil microchannels 122 and 124 and for the aqueous microchannel 123 are preferably controlled by a pump. The pump can be a syringe pump, an on-chip syringe pump, a pressure-driven pump, or any other pump known in the art. In a further embodiment the flow rates may be controlled by a magnetohydrodynamic (MHD) fluidic manifold, that can individually control the pressure/flow rates of each microchannel. Typically, flow rates are in the range of about ~~~0.5 μl/min to ~20 μl/min,~~ ~0.5 μl/min to ~20 μl/min, however, the present invention is not limited to these ranges.